3rd Harmonic Monday Meeting Minutes

Date: August 14, 2006
Time: 9:30 A.M.
Place: Trailer 157 Conference Room

Attendees (P=Present):

C. Antoine	P	C. Cooper	P	E. Harms	P	A. Rowe	P
T. Arkan	P	N. Dhanaraj	P	T. Khabiboulline	P	N. Solyak	
L. Bellantoni	P	H. Edwards	P	D. Mitchell		W-D Moeller	P
C. Boffo		M. Foley	P	D. Olis	P	G. Wu	P
H. Carter	P	C. Ginsburg		P. Pfund	P		

Minutes recorded by Dan
Minutes are posted at: http://tdserver1.fnal.gov/dolis/39GHz_minutes.html
3.9GHz Project page is: www-a0.fnal.gov

Meeting Minutes
Also present were Scott Reeves and Salman Tariq.

HOM bodies/cavity-2 probe failure

- Salman Tariq (AD) presented FEA on F-probe heating and resultant thermal stresses assuming localized heating from multipacting. Model includes probe and extra mat'l for body can. Multiple boundary conditions and power levels explored: end gap heat flux with can body at 1.8K, top tube heating with can body at 1.8K, dog leg heating with can body at 1.8K, dog leg heating with can body at 7K, and 20, 50, and 100W load at each location. All cases show extreme thermal excursions (excess of 900K) and high resulting thermal stresses: 15 to 280MPa Von Mises stresses and -3 to -478MPa principal stresses over range of simulations. Failure likely at 50W level. Stress values and locations consistent with failed Formteil.
- C. Cooper showed SEM pictures taken on failed F-probe. In addition to failure surface features, pic's show cracks in weldment region of probe and can body. Charlie asks that Salman expand his FEA model to include weldment region on can. Salman, Charlie, Timer, and Wolf-Deitrich will develop this revised model.
- Salman's and Charlie's files are at: Q:\TD_SCRF\3rd_harmonic\Form Teil.
- More discussion on Timer's revised design of F-probe to reduce susceptibility to multipacting. Timer will summarize comparison of current and proposed design in a document. Discussion of available funds for fabricating copper model to test design. Final design will be completed by D. Mitchell after he returns from vacation.

Cavity-3 fabrication and test

- M. Foley reports that JLAB (Bob Manus) intends to ship cavity by the end of this week.
- Allan Rowe will formalize inspection plan to study condition of F-probes during cavity processing and develop a schedule to prepare for vertical test.
- Discussion about controlling power input during vertical test to avoid excessive heating of F-probe that seems to have resulted in probe fracture on cavity-2.

Input Couplers

- Dan reports that QC continues. Packing up leaking waveguide, outer conductor, and cold end assembly for return to CPI. Today we are cleaning heavy oxidation off of two of the outer conductor assemblies (soaking in Citrinox) and will then inspect for copper adhesion problems. Helen suggests that adhesion test (with tape or by ultrasonic cleaning) be performed on outer conductors, testing first the components with obvious problems.

Other Business

- Helen asks that Genfa, Wolf-Dietrich, and Timer develop comparative document describing characteristics of 1.3 and 3.9GHz cavities.
- M. Foley led a brief discussion on possible changes in cavity weld procedures (regarding time between welds, vacuum letup with GN2 or GAr, etc.)